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Large Courses at Universities: Criteria for Teacher Action

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Abstract

Large courses represent the vast majority of learning activities in higher education institutions around the world, where classrooms are crowded with students and teachers make their best efforts trying to accomplish the learning objectives. This educational context, along with the increased access to higher education in the past decade, has generated demands on the teaching-learning process. Consequently, research in the topic is needed to elucidate guidelines to improve university instruction. Recent initial findings of the research project “What do the best university teachers do in large courses? A multi-case study” report five crucial aspects to consider when planning a successful large group activity: student-teacher interaction, active learning strategies, classroom management, students’ motivation and commitment, and effective use of technology. Also, it has been concluded that there are five criteria that the best university teachers frequently use in their classes: ubiquitous interaction between student-teacher-student, the dynamic decision-making based on student learning achievement, use of examples originated from reality, promotion in the generation of networks of collaboration, and promotion of participation of students during class. To overcome the challenge of large courses, future research and innovations in large learning activities should be undertaken to evaluate their impact on students’ learning.

Keywords: large course, university, higher education, teacher action, effectiveness, learning

1. Introduction

In recent decades, the number of students in higher education has increased significantly worldwide, especially in developing regions like Latin America and the Caribbean, where enrollment in tertiary education has increased from 2230 per 100,000 population in the year

2000 to 3428 in 2013, representing an approximate 50% increment [1]. This expansion in university access has generated new demands on the teaching-learning process, such as:

- Better and bigger infrastructure
- Access to resources for learning
- Having up-to-date training curricula relevant to social and employment demands
- A better link with the environment, with a special focus on the two-way mutual benefits and the common good of society
- Institutional commitment on the effectiveness of the training processes, manifested—among other elements—in the development of generic and specific competences of the discipline or profession in most of the students
- Access to fair and equitable funding mechanisms for higher education not always covered at the government level
- Having qualified teachers, not only at the level of the discipline or the research but also with pedagogical skills capable of provoking quality learning in the students, and university managers with higher levels of expertise and efficiency in the tasks entrusted, among other requirements

The greater number of students per class is a relevant challenge not only at the methodological level [2–4] but also relates to the economic sustainability of educational projects and to having a sufficient number of teachers to adequately serve the student population [5]. Therefore, this subject is a great opportunity to produce evidence and try to rethink the large courses that are present in almost all disciplines and institutions in the world.

Courses with large numbers of students attending all together in large auditoriums are indeed a widely known format in higher education, but when is it a course considered to be large? Some authors label courses as large when there are between 300 and 1000 students [6, 7]. For others, however, it is not about the number of students, but about the teacher's inability to make prolonged eye contact with their students over a standard 50-minute period [8]. This last definition is the one we will use throughout this chapter to refer to a large course.

Although the theme of larger classes is not new in the literature, the subject has been involved in constant controversies, especially those related to their relevance and effectiveness on student learning [9]. This criticism was generally concentrated before the emergence of technology and the Internet—especially mobile—in the daily lives of people, around the year 2010 [10]. Recently, the challenge of developing students' competencies has put the issue back on the table. However, recent educational research has undergone a change of axis in relation to the assessment, viability, and effectiveness of teachers in large courses [11]. This is due to fundamental elements. On the one hand, due to the irruption of the Internet in the day-to-day and in the training environment, mobile devices and applications are part of the teaching action, thanks to its coverage, accessibility, and simplicity in its implementation [12]. On the other hand, due to a greater appreciation of teaching and the need to improve its effectiveness on the vast majority of students.

In this context, this chapter offers a systematization of available evidence on the subject and the initial findings of the research project entitled “What do the best university teachers do in large courses? A multi-case study” sponsored by the Chilean National Fund for Scientific and Technological Development (FONDECYT). The objective of this 3-year project is the inquiry into teaching practices and their implications in the teaching and learning processes of those teachers recognized for their excellence in large courses throughout the country. Also, the advances related to the identification of those possible criteria for action for the teaching practice would facilitate the effectiveness of large courses, conclusions, and final reflections.

2. Conceptual framework

The previous research has shown five crucial aspects to consider when planning successful large group learning activities [11], which have been related to positive learning outcomes. In a didactic way, they have been divided in order to assure better comprehension, but it is important to point out that they are intrinsically related. The factors identified are student-teacher and student-student interaction, implementation of active learning strategies, classroom management, students’ motivation and commitment, and the effective use of information and communications technology (ICTs).

2.1. Student-teacher and student-student interaction

One of the main disadvantages that strike when thinking about large group activities is the apparent loss of the one-to-one interaction between teachers and students. This situation is particularly relevant when giving feedback to students, which could affect the perception about the effectiveness of the educational process. However, despite the fact that personalized feedback might seem extremely difficult to accomplish, there is another way to preserve an appropriate communication between students and teachers, which is through frequent formative assessments that allow the educator to evaluate student’s learning [13]. In this sense, the teacher gets a general approach about the student’s strength and difficulties regarding the learning process, in a more effective and efficient way than the traditional approach centered in answering particular questions at the end of the class [14], enhancing the communication and interactions between the educator and its class. The interaction between students should be understood as a creative instance [15] that boosts the learning experience empowering them in the process of knowledge acquisition. In the same vein, technology allows easier interactions between students via communities of learners [16], safe spaces for discussion, and support between peers [17]. This is relevant since the involvement of the students in their own educational process has been related with an increase in motivation and engagement that has a positive impact in the large lecture theater [18].

2.2. Active learning

Traditional lectures are often a passive experience for students; on the contrary, methods that promote active participation of students are known to boost the learning process [19]. Active learning has been defined from different perspectives and areas of knowledge [20]. However, beyond the particularities and differences among each approach, there is a consensus to

understand active learning as a process that occurs when students manage to perform tasks and activities immersed in a system of knowledge and think toward their learning process [19]. Examples of these active methods are peer-assisted learning [21–23], formal and informal group learning [24–28], and the assessment, evaluation, and feedback between blind peers [29, 30]. These should be considered to make a positive impact on student's learning outcomes.

2.3. Classroom management

Considering the fact that there is a tendency toward a greater amount of chaos in a large group of activities, administration and management issues should be of special relevance. In this sense, there should be a planning process of the activities before, during, and after the class [31], designing and communicating the activities in a way that all the educators involved have clarity on the process methodology.

Special consideration should be given to the following aspects: recommended lectures, the use of ICTs as learning strategies, the promotion and engaging of student's autonomous motivation, and strategies that advocate toward the maintenance of appropriate student behavior during class [32]. Finally, the evaluation of the educational process comes in two ways: the first one tallies to the direct feedback obtained by students, which is important as it reveals their own perception of the learning process, and, second, the evaluation of the accomplished learning outcomes, which should reveal in the most objective possible way the level of success and progress of the class in terms of the acquisition of intended learning outcomes at the end of the teaching-learning experience.

2.4. Students' motivation and commitment

The concept of motivation has been related not only to behavioral outcomes such as student's successful academic performance in learning a subject but also to affective and cognitive educational outcomes [33]. Motivation, however, as postulated by the self-determination theory of motivation [34], is not a unitary concept and has been differentiated in two main quality types. Autonomous motivation, on the one hand, refers to one's intention to do something appealed by personal satisfaction obtained from the activity, or because of the relevance attributed to a particular activity, without external or internal pressures. In this sense when identifying an activity's value, it is more likely to experience willingness toward it. On the other hand, controlled motivation is understood as an external force that drives an individual toward an action whose ultimate purpose is to avoid punishment or obtain a specific reward from the process [33, 34]. Given the above, educators should encourage autonomous motivation in their students, and align student's expectations with the intended learning outcomes of the class, since they will be more motivated if they feel their teacher's care about their own expectations toward their learning process. In this sense, promoting autonomous motivation would make a consistently positive impact on student's learning outcomes despite the number of students [35].

2.5. The effective use of information and communications technology

The use of effective online teaching resources, meaning ICTs, has been facilitated to overcome the intrinsic challenges of large group activities, thus making the large class format more efficient and important for learners [6]. Salmon [36] mentions four benefits contributed by online educational resources:

1. To provide active educational experiences for all students enhancing the participation of the class
2. An opportunity toward self-paced learning
3. Access to resources without any time or geographical limitations [36]
4. To increase interaction among students through subgrouping and collaborative learning [37, 38]

These aspects not only endeavors reflection, sense of community, and collaboration [39] but also stands for a level of respect toward the individuality of each student's particular learning process and learning abilities, connecting the educators with the diversity contemplated in their class, favoring an integrative classroom environment.

The previous five factors are intrinsically related; hence, they should be always considered in the planification and design of large group activities in order to obtain better learning outcomes. As an example of these, ICTs should be considered as useful tools when designing active learning strategies, as they open possibilities toward integration of a wider range of learning methods, more suitable for the diversity of students found in massive classes. In this sense, to allow a spectrum of learning possibilities stands for a highly appreciated value among students, which is the knowledge educators have about the human component of their classes, who are they, what is the specific cultural and socioeconomic background, how heterogeneous the group is, what are their particular strengths and difficulties when facing a new educational challenge, what they hope to accomplish taking that class, and what are their motivations and aspirations toward the future. The previous shows interest and commitment from the educator toward their students, boosting student-teacher interactions as it shifts from being distant and vertical in the anonymity of a massive group activity toward a more personal level, where the students feel heard in a context of integration of their differences, advocating for students' motivation and commitment. This sounds like a task highly ambitious and almost impossible to accomplish, which is why classroom management plays a crucial role, as it is extremely difficult to get to know each student and assure their active participation in the class without a well-designed strategy. The use of ICTs appears here again playing an essential role allowing organization of students in smaller groups according to their particular interests, enabling feedback before, during, and after the class, and monitorization of the level of interest and participation. To sum up, after analyzing each of the five described components, it is possible to state that they cannot be isolated as separate strategies, as they are related in a way that makes it hard to think about one of them without considering the others.

3. Criteria for action in large courses

Between April 2016 and July 2017, 15 universities throughout Chile were contacted to participate in the study, identifying and convening the best teachers of each institution. Each university selected their representing teachers using two key criteria. The first criterion is that teachers had the recognition of quality and excellence in teaching through different mechanisms, such as the evaluation of students, recognition among peers, and awards given to the best teachers at the institutional level. The second criterion of selection was related to the number of students in the course and the teacher or teaching team. In this sense, it was considered

as selection criteria that the number of students per teacher doubled the overall average of the institution. This last criterion was adopted in this way, because the available evidence is not conclusive about what “large courses” mean, ranging from 50 to 1000 students, or under the criteria of “low visual contact” between the teacher and the students [10].

Under these criteria, 32 teachers were identified who taught classes in large courses comprising between 62 and 246 students. Interviews were scheduled, informed consent validated by the faculty ethics committee, and interviews conducted according to the predefined protocol for this purpose. Interviews were recorded in audio files, and field notes were generated. Then, each interview and field notes were analyzed and codified, identifying and relating effective self-reported teaching practices, using the ATLAS.ti® software. Then, codes were integrated and optimized, generating five large groups of codes. Finally, a process of conceptualization or theorization of the categories with greater concurrence began.

The qualitative methodology described above [40–42] allowed the identification of the five criteria that teachers frequently use—consciously or unconsciously—within their teaching practice in large university courses. The criteria identified in their totality are methodological/pedagogical and are presented from the highest degree of concurrence (22) to the minor (8). Each of the criteria was then reviewed and conceptualized.

3.1. The ubiquitous interaction between student-teacher-student propitiates a better environment for learning

Communication seems to be a relevant factor in the learning experience of large courses. This communication, however, has a particularity. It is present at all times, everywhere and in various formats or devices. Teachers use various ways to be “always connected” with their students. In other words, it is to offer an “always available” training experience through various media and formats, beyond the formal classroom spaces. Some representative quotes were “...I have a special mobile phone for my courses. There, I set up a Whatsapp®-volunteer group with my students from the beginning of the course. They ask me questions and I respond at any time of the day, wherever I am”; “Since I discovered Facebook® a few years ago, I set up a closed group where my students participate in a very natural way. It was a good experience. It is relevant to observe how students interact, often responding to their doubts among themselves”; and “...in my strategic communication course, I use a lot Twitter®, because it allows me to exemplify with everyday cases the contents of the course...the students participate by commenting, allowing me to make corrections about certain errors that they may be making in their analyses”.

The use of communication technologies and social networks seems to be a great strategy to improve the interaction between teachers and their students. In this sense, the use of social media or Web 2.0 has become an interesting resource for student learning.

3.2. Dynamic decision-making based on student learning achievement throughout the process should be the north in classroom management

Size is not a sufficient justification for teachers to not orient their practice toward student learning outcomes. Most interviewees stated that they take short- and long-term measures when they do not achieve the syllabus objectives or in a particular activity or generation of evidence. In a way they empathize and take responsibility for the results that their students achieve, but above all, they manage to reorient their actions. In this context, the processes of feedback and

monitoring that teachers develop in different modalities and situations, ranging from the use of clickers through one-minute papers to brief quizzes, are key actions. Some representative quotes were “...I am permanently concerned about student learning. I ask them a lot in class. And when I see what they are not understanding, I change the teaching strategy...”; “...in all classes I try to use clickers or brief questions ... with these results, I start the next class. When I realize that the answers are not what I expect, I modify the class to try to get my students to learn”; “With the results of the partial assessments, I have sometimes had to adjust the syllabus...it is essential that my students learn”; “For several years until now I have been trying to invest more time on the essentials of the course content, to generate spaces of time to reinforce what students cannot learn...”; and “After I finish each class, I send a small online survey with the topics that were reviewed. I ask them two things: what you learned most strongly and what you have the most doubts...at the beginning of each class, I start with a brief synthesis with those weakest elements detected...when problems persists, I organize an activity especially to strengthen those points...”.

Not all the teaching work will be determined from the beginning; probably during the development of the course, adjustments must be made from the feedback received by the students. This aspect should always be considered within the administration of any class.

3.3. The use of examples or analogies originated from reality is able to link cognitively and emotionally more effectively

Not always the topics of the course are liked by all students, especially in areas that may be more abstract and less motivating. A relevant fact is how teachers select and use examples and situations of contingency in order to promote motivation, linkage, and meaningfulness with the content or learning that is being intended in students. The above not only at an intellectual level but also at an emotional or empathic level with the situation being exemplified and its intrinsic link with learning. Some representative quotes were “...in the day-to-day I am always looking for examples to use in my course. For me it is key to choose good examples not only able to cover the content that I am delivering, but also to engage students to learn”; “Students respond not just because they want to learn. They need to know how knowledge can be used in everyday life...”; “My students are not alien to reality and to the contingency...of what is happening around them. In one way or another, it affects their lives...so choosing good examples of reality will help them understand their environment and make learning meaningful...”; “When I start the course I realize that students are not able to relate contents to reality...it is as if they lived in parallel realities. When I gradually explain using everyday examples, they discover a new world and commit to the course. Hence, the importance I give in selecting good examples...”; and “Several years ago, in the evaluations that I applied in the course, rather than asking the students to answer questions, I gave them topics that they should exemplify, relate and analyze with facts of national and international contingency...it has given me very good results...”.

This represents better communication skills not only over the average of teachers but also in the effective and relevant selection of examples capable of linking students’ motivation with the contents and learning of the course.

3.4. Promotion in the generation of networks of support and collaboration intra- and extracurricular (both between students and teachers) favors the quality of learning

Teachers use the positive effect of collaborative networks, both in and out of the course. Within the course, there are multiple actions, but some stand out, such as peer instruction, collaborative

work, and projects, among other initiatives. In the case of courses that have more than one teacher, they generate actions of reciprocal collaboration with students in smaller groups, especially in learning experiences where they demand the resolution of professional challenges. Outside the course, teachers commonly promote collaboration with former students of the course or simple contact with professionals of the same or other disciplines, with the purpose of broadening the look beyond the course and the generation of networks that facilitate the initial labor insertion. Some representative quotes were *"The work done by the students through collaboration, both inside and outside the classroom, has been vital ... I notice it when interacting in the social media of the course and when jointly solving the work that I request. I usually organize groups randomly and reconfigure them two or three times during the course. This way I assure they generate networks, collaborate and are able to cope with the course..."*; *"My class is in a large auditorium...and although it seems difficult, what I do most is instruction between peers. Even on some occasions, I have placed themselves in different positions inside the auditorium so that they rotate the work-groups ... I see how students' motivation, engagement and achievement increases..."*; *"...at the end of each topic, I ask students to interview professionals from their own discipline to compare the contents of the course and to generate professional links that promote understanding of how to insert themselves in the professional context...this helps the students to be responsible with their own learning and collect experiences or situations to be shared during the class"*; and *"When my students understand and realize that we are a learning community during the course, there are really significant changes in their performance...it is interesting to see how their behavior changes and how they take more responsibility for learning, especially in moments that I make them interact with key stakeholders outside the course..."*.

As part of any course, the interaction between students, through various methodologies or extracurricular activities, must be planned and strengthened, in order to positively impact their learning.

3.5. Promotion of permanent cognitive participation of students during class improves achievement in learning

Beyond the course size, these teachers permanently ask their students' involvement and not just to attend as passive listeners. Usually, they ask students small but permanent actions that imply them to respond, think, propose, or elaborate, which is manifested in some type of evidence or learning product. These actions are permanently generated within the same class session and throughout the period in which the course is dictated. This is based on the perception of these teachers in maintaining students' attention as long as possible, which leads to better results. Some representative quotes were *"...or via clickers or One Minute Paper session-by-session, I have my students constantly mobilizing what we review in class, otherwise, what purpose has that they just sit and listen?..."*; *"In several sessions I use Flipped Classroom. Therefore, they already know that they must come to classes to apply or to solve exercises that will be part of their assessment. Many times I also do it to integrate several contents. The idea is that they are in constantly aware and attentive to learn..."*; and *"The traditional idea of going to class to sit and listen simply does not respond to the current needs in the development of skills. By having a large group of courses, I want to involve the vast majority of students, and not everyone can speak at the same time. That's why I integrate activities where they have to connect with what I expose in classes..."*.

Active learning must be one of the central pillars in class planning in large courses. To make learning happen, the student must do more than just listen to the teacher.

4. Conclusions

All the criteria that have been identified in this chapter are possible to apply in small courses and are not exclusive to large group activities. So, what must be especially considered in classes where the size becomes more of a problem than a challenge to be faced?

It seems to us that the relevance lies in when, where, and how the teaching and learning process is implemented and managed. Consequently, the problem is not in size, but in the choice of strategies to use and how they are managed in the classroom to raise the quality of learning in the vast majority of students.

Another issue to be considered is related to the use of technologies and its usefulness to tackle large courses. Above all, the use of everyday applications or those easy to access—such as social media—can cause significant differences when developing environments that promote effective learning. It should be noted that technologies do not solve all the challenges that come with large courses, but they manage to solve a significant group of them, such as interaction, communication, and individual monitoring that can be developed with these tools.

5. Final thoughts

First, it should be remembered that large courses are common in institutions of higher education. Therefore, before continuing to renege on the disadvantages and drawbacks of this reality, it is necessary to innovate on how it is possible to better assume this challenge.

However, the role of educational research is vital, especially in the understanding of how to make these kinds of classes more effective, considering the current and future cultural characteristics of students who will enter higher education. Increasingly, the demands for quality education and teaching encourage us to have better and greater tools to meet this challenge.

Finally, it is the task of the whole university community to face the challenge of making the classroom, the teaching, and the learning processes of the twenty-first century more meaningful in higher education. The problem is not the size of classes, but how we are supporting the current and future generation of students who attend our universities for a training that effectively prepares them to face their professional future and the challenges of society.

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